from the MME to the SGW-C and from there to the PGW-C, but which is currently not possible in the existing GTP-C protocol (as defined in 3GPP TS 29274 Create session request, for example).

[0124] According to an alternative embodiment, the MME may perform the allocation of the user Plane already in the first DNS step. It may consult the OF controllers (responsible for the selected SGW-C and one responsible for the selected PGW) in the second step. In this case, the MME needs to know the address of the OFCs for SGW-C and/or the PGW-C by some pre-Configuration. Alternatively the MME may consult the/its DNS again, but requesting the User plane for the SGW-C and/or the PGW-C in question. In any case it is suggested that the MME sends the two IDs of the selected U-plane NEs via the GTP-C (3GPP 29274) towards the SGW-C and PGW-C.

[0125] That is, according to this embodiment, the signaling flow of FIG. **1** is modified such that in S**1** also information regarding SGW-U and PGW-U (e.g., IDs of the SGW-U and PGW-U) are obtained from the DNS, and in S**2**, this information is also sent to SGW-C and PGW-C, so that the corresponding OFC **32** and **33** do not have to perform the selection procedures. Hence, S**4** and **510** are omitted.

[0126] That is, according to this embodiment, an explicit and independent selection of both planes is possible.

[0127] According to a further embodiment of the present invention, the OFC consults an augmented PCE (path computation element) which calculates the corresponding U-Plane network element.

[0128] The advantage of using a PCE is that the PCE in general can provide "realtime" view about the availability and status (like e.g. capacity, overload or so) of the resources if continuously fed via OSPF (or similar like BGP), etc.

[0129] PCE is defined in RFC 4655. According to FIGS. **1** and **2** of the RFC 4655 the PCE in general is updated with the location and the availability (etc.) of (transport) resources via a IGP (Interior gateway protocol like for instance the OSPF and/or IS-IS protocol) in order to calculate transport path. These paths are requested via the PCEP (PCE Protocol) from a PCC (path computation client).

[0130] However, according to the present embodiment, the MME or the OFC (as a PCC) may request the calculation of the user plane and/or control plane resources , which of course would also would have been to be fed by the enhanced OSPF protocol.

[0131] FIG. **2** reproduces FIG. **2** of RFC 4655. Based on this figure, the Service request would be the "initial attach" message from the UE sent via the eNB to the MME. The MME acting as a PCC turns to the PCE for the information (at least the IP adress of the resource) about the resource (SGW, PGW, o U or C are or both as valid for the network in question etc). Then the MME sends the GTP-C message Create Session request to the SGW-C (in FIG. **3** denoted via the "signalling" interface). The so called routing protocol (e.g. OSPF) which is also to be enhanced with the information about the SGW-U and/or SGW-C and PGW-U and/or PGW-C such that the TED (Traffic engineering database) holds information about the address (e.g. IP address) of the resources available for the selection process.

[0132] That is, according to this embodiment, the signaling flow of FIG. **1** is modified such that in S**4** and/or S**10**, the OFC **32** and/or **33** access the PCE instead of the DNS in order to obtain the necessary information, i.e., the Ids of the SGW-U and/or PGW-U.

[0133] As a further modification, also the MME may access the PCE. That, is in case the MME also performs the selection of the SGW-U and the PGW-U, the MME may access the PCE.

[0134] In the following, some general embodiments of the present invention is described by referring to FIGS. **3**A and **3**B. In particular, FIGS. **3**A and **3**B show several network elements involved in procedures according to embodiments of the present invention. In more detail, FIG. **3**A shows an MME A and an OFC B, and FIG. **3**B shows a DNS/PCE C and a xGW-C/u D. The MME A shown in FIG. **3**A may be the MME **1** shown in FIG. **1**, and the OFC B may be one of the OFCs **31** to **33** shown in FIG. **1**, depending on which SGW-C has been selected.

[0135] It is however noted that that MME, OFC, DNS/PCE and xGW-C/u are only examples for corresponding network elements which carry out corresponding functions.

[0136] It is to be noted that the network elements A, B, C and D shown in FIGS. **3**A and **3**B may comprise several further elements or functions besides those described in connection therewith but which are omitted herein for the sake of simplicity as they are not essential for understanding the invention.

[0137] The MME A comprises a processing function or processor A**1**, such as a CPU or the like, which executes instructions given by programs or the like. The processor A**1** may comprise further portions dedicated to specific processings as described below. Portions for executing such specific processings may be also provided as discrete elements or within one or more further processors, for example. Reference sign A**2** denotes transceivers or input/output (I/O) units connected to the processor A**1**. The I/O units A**2** may be used for communicating with other network elements or functions, such as other elements as shown in FIG. **1**, for example. Reference sign A**3** denotes a memory usable, for example, for storing data and programs to be executed by the processor Al and/or as a working storage of the processor A**1**.

[0138] The processor A**1** is configured to establish a connection session in a network involving a network resource (e.g., SGW, PGW) to be selected, and to select at least one of a control plane and a user plane of the network resource.

[0139] According to certain embodiments, MME has at least a modified DNS/PCE interface (as one of the I/O units A**2**), and according to the above embodiment in which also the U-Plane is selected, the MME also comprises a modified GTP-C interface with xGW-U Ids.

[0140] Similar as the MME A, the OFC B comprises a processing function or processor B**1**, such as a CPU or the like, which executes instructions given by programs or the like. The OFC is an example for a network control element for configuring software defined networks (SDN). The processor B**1** may comprise further portions dedicated to specific processings as described below. Portions for executing such specific processings may be also provided as discrete elements or within one or more further processors, for example. Reference sign B**2** denotes transceivers or input/output (I/O) units connected to the processor B**1**. The I/O units B**2** may be used for communicating with other network elements or functions, such as elements shown in FIG. **1**, for example. Reference sign B**3** denotes a memory usable, for